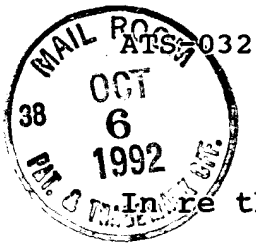

ATS-032

PATENT APPLICATION
BOX AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Patent Application of)
)
SATOSHI KONO ET AL) Group Art Unit: 3502
)
Serial No. 07/485,659) Examiner: V. Luong
)
Filed: February 27, 1990)
)
For: CRANKSHAFT ASSEMBLY FOR)
INTERNAL COMBUSTION ENGINE)

93-3313

LETTER RE: APPEAL BRIEF

Honorable Commissioner of
Patents and Trademarks
BOX AF
Washington, D.C. 20231

Sir:

We have enclosed an Appeal Brief, in triplicate, in connection with the above-identified application, together with our check in the amount of $270.00.

Respectfully submitted,

Date: October 6, 1992

Ronald P. Kananen
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270.00-020

AF 350 #19

ATS-032

PATENT APPLICATION
BOX AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Patent Application of)
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93-3313

APPEAL BRIEF

Honorable Commissioner of
Patents and Trademarks
BOX AF
Washington, D.C. 20231

Sir:

This is an Appeal Brief under Rule 192 in connection with the decision of the Primary Examiner dated October 7, 1991. Each of the topics required by Rule 192 is presented herewith and is labeled appropriately.

I. STATUS OF CLAIMS

Claims 11 - 16 and 18 are pending in the application. Claims 17 and 19 are cancelled.

II. STATUS OF AMENDMENTS

An after Final amendment is being filed with Appeal Brief. This after Final amendment is such as to cancel claims 17 and 19 and to amend the non-cancelled claims (claims 11, 13, 14, 16 and 18) in a manner which is deemed to place the same in better condition for appeal. The issues and arguement which

follow have are drafted based on the assumption that the changes will be entered by the Examiner.

III. SUMMARY OF THE INVENTION

The invention features a flywheel which comprises a flywheel body which is connected with an engine crankshaft by way of an elastic or resilient plate. The elastic member has a torsional rigidity sufficient to effectively transmit driving power or torque. The elastic member further features a rigidity in the axial direction (viz., axial with respect to the engine crankshaft) which is small enough to shift the torsional vibration resonance frequency out of a predetermined frequency band which tends to occur during vehicular acceleration, while simultaneously ensuring the proper disengagement characteristics.

IV. REFERENCES OF RECORD

The following is list of references relied upon by the Examiner in the final rejection.

Japanese Patent Publication No. 57-58,542 (JP '542)

European Patent Application No. 0 048 563 A1 (EP'563)

V. ISSUES

The issues presented for consideration in this appeal are:

1. Whether the Examiner has erred in rejecting claims 11 - 16 and 18 under 35 USC § 112 second paragraph as being indefinite and for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention;

2. Whether the Examiner has erred in rejecting claims 11 - 16 and 18 under 35 USC § 103 as being allegedly unpatentable over JP '542; and

3. Whether the Examiner has erred in rejecting claims 11 - 16 and 18 under 35 USC § 103 as being allegedly upatentable over EP '563 (Luigi).

VI. GROUPING OF CLAIMS

It is believed that claims 11 - 16 and 18 do not stand or fall together as a group with respect to the 35 USC § 103 rejection as being allegedly obvious in view of JP '542, in that this reference neither teaches nor suggests that axial rigidity is of any importance and certainly does not suggest that setting this value within any particular predetermined range (claim 1) could effect the clutch engagement characteristics in a manner which would effect the amount of noise produced.

It is believed that claims 11 - 16 and 18 do not stand or fall together as a group with respect to the 35 USC § 103

rejection as being allegedly obvious in view of JP '542, in that this reference neither teaches nor suggests that the surface of the flywheel which is engageable with a clutch disc should exhibit an axial run off of less than 0.1 mm (claim 14); in that the elastic plate which exhibits a run off of less than 0.1 mm should also exhibit an axial rigidity in the range of 600 kg/mm - 2200 kg/mm (claim 15); and further in that it is not clear if the guide stopper plate 24 of JP '542 actually reinforces the elastic or resilient plate 3 which provides the drive connection between the crankshaft and the clutch body.

It is believed that claims 11 - 16 and 18 do not stand or fall together as a group with respect to the 35 USC § 103 rejection as being allegedly obvious in view of EP '563 (Luigi) in that this reference neither suggests that axial rigidity is of any importance nor leads toward the setting of the same within any particular predetermined range (claim 1) in a manner which would effect the amount of noise produced. It is further believed that claims 11 - 16 and 18 do not stand or fall together as a group with respect to the 35 USC § 103 rejection as being allegedly obvious in view of EP '563 (Luigi), in that this reference also is devoid of teachings which suggest that the surface of the flywheel which is engageable with a clutch disc should exhibit an axial run off of less than 0.1 mm (claim 14); in that this reference does not suggest that the elastic plate should exhibit a run off of less than 0.1 mm (claim 14), should

also exhibit an axial rigidity in the range of 600 kg/mm - 2200 kg/mm (claim 15); and further in that it is not clear if the elements which appear to be washers on the bolts 15, actually define a space between the elastic plate and the flywheel body (claim 18) or not.

VII. ARGUMENT

1. The Examiner has erred in rejecting claims 11 - 16 and 18 under 35 USC § 112 second paragraph as being indefinite and for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

The Examiner has rejected claims 11 - 16 and 18 under 35 USC § 112 second paragraph as being indefinite.

The Examiner has indicated that the claims contain a confusing variety of terms such as "A flywheel" and "a flywheel body" in claims 11, 14, 16, and 18. However, the language of the claims is deemed clear and to make it very clear that what is being claimed is a flywheel per se and that the flywheel consists of two basic elements - an elastic plate and a flywheel body. This is deemed to particularly point out the elements which are deemed to comprise the flywheel and thus distinctly claim the same.

It is assumed that the Examiner has entered the amendments which change the obviously erroneous use of "crankshaft assembly" and replace it with the correct terminology. As a "crankshaft" is recited in claim 11, it cannot

be seen that the use of this language is deemed to render its usage in claim 13 indefinite in any way.

Claims 16 and 18 are amended in a which removes the somewhat awkward useage of "secured portion" in a manner which is deemed to render the same definite.

The functional language such as "smooth engagement" and "as as" have been left in the claims. While these statements may be attributed "insignificant patenable weight" they do not render the claim indefinite and merely clarify what the Examiner acknowledges as being the "inherent result" of the recited structure (see page 8 of the final action dated 10.07/91).

2. The Examiner has erred in rejecting claims 11 - 16 and 18 under 35 USC § 103 as being allegedly unpatentable over JP '542.

The Examiner has rejected claims 11 - 16 and 18 under 35 USC § 103 as being allegedly unpatentable over JP '542. In this rejection the Examiner has indicated that JP '542 neither discloses the claimed range of axial rigidity, nor the claimed run-out limit. The Examiner then goes on to state that it is "common knowledge" to "choose the optimal range of axial rigidity of the plate and the axial run-out of the engageable surface in order to improve the effiency of the crankshaft".

Thus, we are faced with the situation wherein (a) the art is acknowleged as not providing any information relating to the axial rigidity and axial run-off requirements, and (b) the impetus to consider any changes to the just mentioned parameters

must come from what is alleged to be "common knowledge of the prior art".

The applicant also notes that the Examiner considers there to be some form of "admission" concerning the prior art on pages 1 and 2 of the specification, and has possibly drawn upon the applicant's own disclosure for directions as how the above mentioned axial rigidity and axial run-off parameters should be set.

Firstly, the applicants' own disclosure is basically not available as a reference against the claims. Secondly, the disclosure which is found on pages 1 and 2 of the specification, could only be deemed to disclose that clutches have tended to produce undesirable noises and that an arrangement which is disclosed in JP '542 has included a resilient or elastic plate which allows the resonance frequency of the arrangement to be shifted in a manner which tends to obviate the noise generation.

However, the discovery of the problem which can stem from this measure, viz., the impairment of the clutch stroke charactistics, cannot be deemed to be admitted in any way.

The Examiner has also indicated that unless the JP '542 arrangement had sufficient axial rigidity, it would be "inoperative" for its intended purpose. While this may be true, it only means that while the resonance frequency is shifted and the noise is attenuated, the JP '542 arrangement would have to be effective for its intended purpose. Beyond this, there is no

disclosure which would lead to further development. Most certainly, any hint that would lead one toward attempting to simultaneously solve the noise generation problem along with the discovered problem (viz., the problem that clutch release may be impaired) is not found in the art of record, and most certainly the allegedly existent "common knowledge of the art" would not suffice for this purpose.

It is the applicants' position that some documented evidence which supports the existence of the purported "common knowledge" should be present in order to clarify this issue.

In connection with the rejection of claim 16 and 18, the Examiner has indicated that the guide stopper plate 24 of JP '542 reinforces the elastic plate 3. However, it is the applicants' position that unless the stopper plate 24 was located on the opposite side of the elastic plate 3 in a manner to sandwich the elastic plate 3 against the end of the engine crank shaft 1, there would be little or no re-inforcing action. This should be compared with the washers which are provided on the bolts 15 of EP '563 (Luigi). In other words, the elastic plate 3 can be deemed to be bolted directly to the end of the crankshaft with the guide stopper plate 24 acting merely as a spacer.

Hence, there is considerable doubt as to whether one would take the disclosure of the JP '542 document as a whole, as suggesting that the guide stopper plate 24 is a member which would reinforce the resilient or elastic plate 3.

The construction and arrangement of the guide stopper plate is such as to suggest that it is provided to modify the amount of flexure of the elastic plate 3 toward the crankshaft 1 during engagment of the clutch.

The claims require the section of the elastic plate which is secured to the crankshaft to be re-inforced by the reinforcing member. It is extremely questionable if the guide stopper plate 24 will provide such a function.

Claims 16 and 18 further require a space to defined by the reinforcing member. The Examiner has concluded that the guide stopper plate closes off openings 2 formed in the elastic plate 3 in a manner which defines a space in the required manner. However, it would appear that the "space" in the JP '542 arrangement is defined by the elastic plate per se and the guide stopper plate 24 merely renders the space a closed one.

3. The Examiner has erred in rejecting claims 11 - 16 and 18 under 35 USC § 103 as being allegedly upatentable over EP '563 (Luigi).

The Examiner has rejected caims 11 - 16 and 18 under 35 USC § 103 as being allegedly upatentable over EP '563 (Luigi). This reference is acknowledged by the PTO as being silent as to which level of axial rigidity is required and devoid of any mention of axial run-out. Again, in this instance, "common knowledge" is relied upon to teach the parameter values which define the very crux of the invention. However, this sole

reliance on what is alleged to exist in the realm of common knowledge is deemed to also render the tenability of this rejection dubious.

In connection with the rejection of claims 16 and 18 the Examiner has indicated that the washers on the bolts 15 could be deemed to be the claimed reinforcing member. In this case as the washers do sandwich the elastic plate against the crankshaft end some reinforcement could be deemed to be produced. However, the Examiner does not address the manner in which these members defines the space required by the claims. It is the applicants position that there is no imaginable manner in which one could conceive of the washers defining a space of the required type.

To complicate matters further, it would appear that there are a number of washers and that this would suggest that a plurality of reinforcing members should be provided.

Respectfully submitted,

Date: October 6, 1992

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IX APPENDIX
CLAIMS ON APPEAL

11. A flywheel for a power transmission system for transmitting engine torque to a driven unit, comprising:

an elastic plate secured to a crankshaft to rotate therewith; and

a flywheel body secured to said elastic plate and having an engageable surface which is engageable with a clutch disc,

said elastic plate having an axial rigidity in the range of 600 kg/mm to 2200 kg/mm so as to ensure transmission of engine torque to said driven unit, while decreasing noise produced by a bending vibration of said crankshaft.

12. A flywheel as set forth in claim 11, wherein said axial rigidity is in the range of 600 kg/mm to 1700 kg/mm.

13. A flywheel as set forth in claim 12, wherein an axial run-out of said engageable surface when rotated by said crankshaft is no more than 0.1 mm.

14. A flywheel for a power transmission system for transmitting engine torque to a driven unit, comprising:

an elastic plate secured to a crankshaft to rotate therewith; and

a flywheel body secured to said elastic plate and having an engageable surface which is engageable with a clutch disc,

said engageable surface having an axial run-out which is equal to or less than 0.1 mm for ensuring a smooth engagement with said clutch disc.

15. A flywheel as set forth in claim 14, wherein said elastic plate has an axial rigidity in the range of 600 kg/mm to 2200 kg/mm so as to ensure transmission of engine torque to said driven unit, while decreasing noise produced by a bending vibration of said crankshaft.

16. A flywheel for a power transmission system for transmitting engine torque to a driven unit, comprising:

an elastic plate secured to a crankshaft to rotate therewith; and

a flywheel body secured to said elastic plate and having an engageable surface which is engageable with a clutch disc;

a reinforcing member for reinforcing said elastic plate at a portion of said elastic plate which is secured to said crankshaft, said reinforcing member defining a space between said elastic plate and said flywheel body,

said elastic plate having an axial rigidity in the range of 600 kg/mm to 2200 kg/mm so as to ensure transmission of engine torque to said driven unit, while decreasing noise produced by a bending vibration of said crankshaft.

18. A flywheel for a power transmission system for transmitting engine torque to a driven unit, comprising:

an elastic plate secured to a crankshaft to rotate therewith;

a flywheel body secured to said elastic plate and having an engageable surface which is engageable with a clutch disc; and

a reinforcing member for reinforcing said elastic plate at a portion of said elastic plate which is secured to said crankshaft, said reinforcing member defining a space between said elastic plate and said flywheel body,

said engageable surface having an axial run-out which is equal to or less than 0.1 mm for ensuring a smooth engagement with said clutch disc.